AMENDMENTS TO THE CLAIMS

1. (currently amended) A chimeric protein comprising:

B1

(a) a Kunitz-type domain 1 of TFPI-2 or a mutein thereof, and (b) a Kunitz-type domain 2 of TFPI or a mutein thereof; or

(c) a Kunitz-type domain 2 of TFPI-2 or a mutein thereof and (d) a Kunitz-type domain 1 of TFPI or a mutein thereof.

2. (currently amended) The chimeric protein of claim 1, wherein said chimeric protein is represented by the generic structure:

$$A\text{-}(X_1)_a\text{-}B\text{-}(X_2)_b\text{-}C$$

wherein A and C are independently optional flanking peptides, the flanking peptides containing 0-100 amino acids;

wherein B is an optional spacer peptide, the spacer peptide containing 0-25 amino acids;

wherein each X_1 is -D-K_1-E-

where D, E are independently peptides of 0-25 amino acids,

where K_1 comprises TFPI Kunitz-type domain 1 or a mutein thereof, or TFPI-2 Kunitz-type domain 1 or a mutein thereof;

wherein each X_2 is -F-K_2-G-

where F, G are independently peptides of 0-25 amino acids,

where K_2 comprises TFPI Kunitz-type domain 2 or a mutein thereof, or TFPI-2 Kunitz-type domain 2 or a mutein thereof;

wherein a, b are integers from 0-6;

B1 Conclude

wherein A, B, C, D, E, F, G may comprise portions of native TFPI or TFPI-2 sequences; and

the chimeric protein ~~molecule~~ is not native TFPI or TFPI-2.

3. (original) The chimeric protein of claim 2, wherein A or C comprises Kunitz-type domain 3 of TFPI.

4. (original) The chimeric protein of claim 2, wherein A or C comprises Kunitz-type domain 3 of TFPI-2.

5. (original) The chimeric protein of claim 2, wherein at least one of said flanking peptides comprises an amino acid sequence capable of binding one or more cell surface components.

6. (original) The chimeric protein of claim 5, wherein said amino acid sequence capable of binding one more cell surface components is an amino acid sequence capable of binding a glycosaminoglycan.

7. (original) The chimeric protein of claim 6, wherein said amino acid sequence capable of binding a glycosaminoglycan is an amino acid sequence capable of binding heparin.

8. (original) The chimeric protein of claim 7, wherein said amino acid sequence capable of binding heparin is a heparin-binding domain from a protein, said protein selected from the group consisting of:

(a) protease nexin-1;

(b) protease nexin-2;

(c) antithrombin III;

(d) heparin cofactor II;

(e) protein C inhibitor;

(f) platelet factor 4;

(g) bovine pancreatic trypsin inhibitor; and

(h) ghilanten-related inhibitors.

9. (original) The chimeric protein of claim 7, wherein said amino acid sequence capable of binding heparin is a heparin-binding domain selected from the group consisting of:

(a) SEQ ID NO: 10;

(b) SEQ ID NO: 11;

(c) SEQ ID NO: 12;

(d) SEQ ID NO: 13;

(e) SEQ ID NO: 14;

(f) SEQ ID NO: 15;

(g) SEQ ID NO: 16;

(h) SEQ ID NO: 17; and

(i) SEQ ID NO: 18.

10. (original) The chimeric protein of claim 5, wherein said flanking peptide comprises the C-terminal tail of TFPI [SEQ ID NO: 7].

11. (original) The chimeric protein of claim 5, wherein said flanking peptide comprises the C-terminal tail of TFPI-2 [SEQ ID NO: 8].

12. (canceled)

13. (original) The chimeric protein of claim 2, wherein each K_1 is mutein of Kunitz-type domain 1 of TFPI-2, each K_2 is a mutein of Kunitz-type domain 2 of TFPI, and a and b are integers greater than 1.

14. (currently amended) A ~~The~~ chimeric protein ~~of claim 1~~, wherein the primary amino acid sequence of the chimeric protein is SEQ ID NO: 19.

15. (currently amended) The chimeric protein of claim 14 ~~1~~, wherein the chimeric protein comprises first and second amino acid sequences, said first amino acid sequence comprising SEQ ID NO:19 ~~SEQ ID 19~~ and said second amino acid sequence selected from the group consisting of:

(a) SEQ ID NO: 7;

(b) SEQ ID NO: 8;

(c) SEQ ID NO: 10;

(d) SEQ ID NO: 11;

(e) SEQ ID NO: 12;

(f) SEQ ID NO: 13;

(g) SEQ ID NO: 14;

(h) SEQ ID NO: 15;

(i) SEQ ID NO: 16;

(j) SEQ ID NO: 17; and

(k) SEQ ID NO: 18.

16. (currently amended) The chimeric protein of claim 1, wherein said chimeric protein is represented by the generic structure:

$$A\text{-}[X_1\text{-}B\text{-}X_2]_c\text{-}C$$

wherein A and C are independently optional flanking peptides, the flanking peptides containing 1-100 amino acids;

B2

wherein B is an optional spacer peptide, the spacer peptide containing 1-25 amino acids;

wherein each X_1 is -D-K_1-E-

Conclude

where D, E are independently peptides of 1-25 amino acids,

where K_1 is (a) the Kunitz-type domain 1 of TFPI-2 or the mutein thereof or (b) the TFPI Kunitz-type domain 1 of TFPI or the mutein thereof ~~from TFPI or TFPI-2 or a mutein of the aforementioned Kunitz-type domain~~;

wherein each X_2 is -F-K_2-G-

where F, G are independently peptides of 1-25 amino acids,

where K_2 is (a) the Kunitz-type domain 2 of TFPI or the mutein thereof or (b) the Kunitz-type domain 2 of TFPI-2 or the mutein thereof ~~a mutein of the aforementioned Kunitz-type domain~~,

wherein c is an integer from 1-10.

17. (original) The chimeric protein of claim 16, wherein A or C comprises Kunitz-type domain 3 of TFPI [SEQ ID NO: 7].

18. (original) The chimeric protein of claim 16, wherein A or C comprises Kunitz-type domain 3 of TFPI-2 [SEQ ID NO: 8].

19. (original) The chimeric protein of claim 16, wherein at least one of said flanking peptides comprises an amino acid sequence capable of binding one or more cell surface components.

20. (original) The chimeric protein of claim 19, wherein said amino acid sequence capable of binding one or more cell surface components is an amino acid sequence that binds glycosaminoglycan.

21. (original) The chimeric protein of claim 20, wherein said amino acid sequence capable of binding glycosaminoglycan is an amino acid sequence capable of binding heparin.

22. (original) The chimeric protein of claim 21, wherein said amino acid sequence capable of binding heparin is a heparin-binding domain from a protein, said protein selected from the group consisting of:

(a) protease nexin-1;

(b) protease nexin-2;

(c) antithrombin III;

(d) heparin cofactor II;

(e) protein C inhibitor;

(f) platelet factor 4;

(g) bovine pancreatic trypsin inhibitor; and

(h) ghilanten-related inhibitors.

23. (original) The chimeric protein of claim 21, wherein said amino acid sequence capable of binding heparin is a heparin-binding domain selected from the group consisting of:

(a) SEQ ID NO: 10;

(b) SEQ ID NO: 11;

(c) SEQ ID NO: 12;

(d) SEQ ID NO: 13;

(e) SEQ ID NO: 14;

(f) SEQ ID NO: 15;

(g) SEQ ID NO: 16;

(h) SEQ ID NO: 17; and

(i) SEQ ID NO: 18.

24. (original) The chimeric protein of claim 19, wherein said flanking peptide comprises the C-terminal tail of TFPI [SEQ ID NO: 7].

25. (original) The chimeric protein of claim 19, wherein said flanking peptide comprises the C-terminal tail of TFPI-2 [SEQ ID NO: 8].

26. (original) The chimeric protein of claim 1 wherein said protein is produced in a yeast cell and contains no carbohydrate which is immunogenic in mammals.

27. (original) The chimeric protein of claim 26 wherein said protein contains no α-1,6-polymannose terminal carbohydrate.

28-72. (canceled)

73. (original) A pharmaceutical composition comprising the chimeric protein of claim 1 and a pharmaceutically acceptable carrier.

74-87. (canceled)

88. (new) The chimeric protein of claim 2 wherein each K_1 is a mutein of Kunitz-type domain 1 of TFPI and each K_2 is a mutein of Kunitz-type domain 2 of TFPI-2.